REMARKS

Claims 1-12 are pending in the application and stand rejected. Claims 1 and 4 have been amended. Claims 3 and 7 have been canceled without prejudice. The Examiner's reconsideration of the claim rejections is respectfully requested in view of the above amendments and following remarks.

Claims 1-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,675,072 to Bennett in view of U.S. Patent No. 6,323,046 to Agarwal. To establish a prima facie case of obviousness, various criteria must be met. For instance, there must be some suggestion or motivation in the references or in the knowledge generally available to one skilled in the art to combine the reference teachings. In addition, the prior art references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination must both be found in the prior art and not based on applicants' disclosure (see, e.g., MPEP 2141, 2143, 2143.03).

It is respectfully submitted that for at least the reasons set forth below, at the very least, the combination of Bennett and Agarwal is legally deficient to establish a *prima facie* case of obviousness under 35 U.S.C. 103 against claims 1 and 4. To begin, it is respectfully submitted that the combination of Bennett and Agarwal does not disclose or suggest ***chemically analyzing*** *a concentration of an implanted dopant released from a semiconductor film during an etch process to determine an endpoint for the etch process, wherein the endpoint of the etch process is determined based on a peak concentration of the* ***implant dopant in an etch plasma***, as essentially claimed in claim 1.

Indeed, Examiner acknowledges that Bennett does not disclose the use of an implanted dopant layer for detecting an endpoint. Thus, it necessarily follows that Bennett does not

disclose or suggest detecting the concentration of an implanted dopant in an etch plasma. Moreover, Agarwal does not cure the deficiencies of Bennett in this regard. Indeed, although Agarwal arguably discloses an endpoint detection method that detects the concentration of an implanted dopant, Agarwal does not disclose or suggest an etch process, much less *determining the endpoint of the etch process based on a peak concentration of the implant dopant in an* ***etch plasma***. In contrast, Agarwal discloses an endpoint detection method for use with CMP, wherein the slurry resulting from the planarizing process (not an etch plasma resulting from dry etch process) is analyzed for concentration of an implanted dopant.

Moreover, although Bennett discloses a plasma etch process, it is respectfully submitted that there is not legal basis or motivation for combining the teachings of Bennett and Agarwal with respect to the claimed inventions. In particular, by way of example, Bennett is directed to an optical-based end-point detection method for use in a plasma etching process (e.g., RIE (reactive ion etching), whereas Agarwal discloses an endpoint detection for a CMP process, or "planarization" process. In general, a CMP planarization process is very different from an "etch process" as is understood by those of ordinary skill in the art and require different tools and processing environments.

In fact, Bennett discloses nothing more than the prior art, non-*in situ* optical-based end point detection methods disclosed in Applicants' specification (see, e.g., pages 4-7 of Applicants' specification). There are many disadvantages and problems associated with the optical methods such as the Bennett methods (see, e.g., page 6, lines 6-23 of Applicants' specification), which are remedied by the claimed inventions. As such, one of ordinary skill in the art would not be motivated to combine the disparate teachings of Bennett and Agarwal to derive the invention of claim 1.

With respect to claim 4, it is respectfully submitted that the combination of Agarwal and Bennett does not disclose or suggest, for example, the claimed steps of *detecting a concentration of the dopant in an etching environment as the material is etched, wherein the step of detecting comprises detecting the concentration of compound formed from the dopant during the etching process*, as essentially recited in claim 4. Indeed, as noted above, Examiner acknowledges that Bennett does not disclose the use of an implanted dopant layer for detecting an endpoint. Moreover, although Agarwal arguably discloses an endpoint detection method that detects the concentration of an implanted dopant in a CMP slurry, Agarwal clearly does not disclose or suggest an etch process, much less *detecting the concentration of compound formed from the dopant during the etching process* . Moreover, even assuming, arguendo that the combination teaches or suggests the elements of claim 4, as noted above, there is no reasonable basis or motivation for combining the teachings of Bennett and Agarwal.

Therefore, for at least the reasons given above, claims 1 and 4 are patentable and non-obvious over the combination of Bennett and Agarwal. Further, all pending claims that depend from claims 1 and 4 are patentable and non-obvious over such combination for at least the same reasons given above for respective base claims 1 and 4. Accordingly, the withdrawal of all the claim rejections is respectfully requested.

Respectfully submitted,

Frank DeRosa
Reg. No. 43,584
Attorney for Applicants

F. Chau & Associates, LLP
1900 Hempstead Turnpike, Suite 501
East Meadow, New York 11554
Tel: (516) 357-0091
FAX: (516) 357-0092